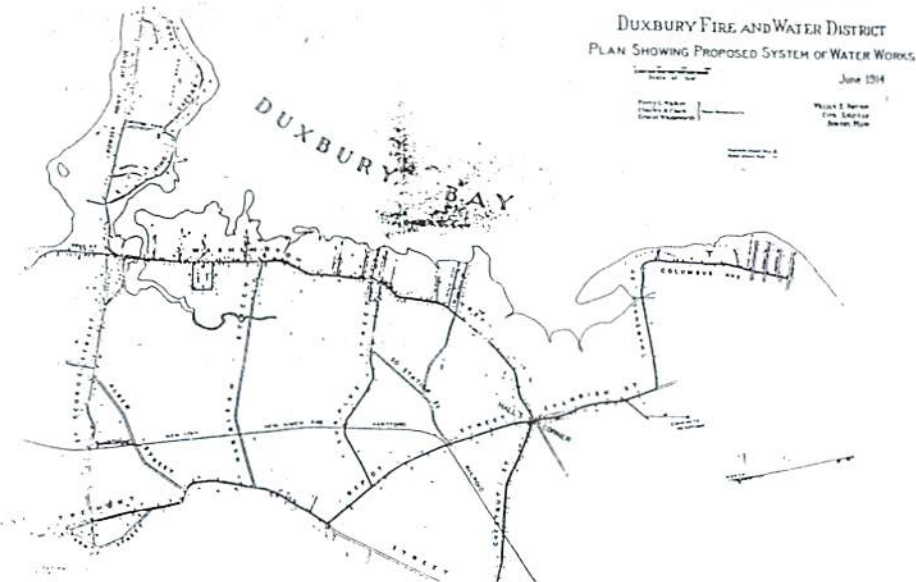


Duxbury's Water Supply

By THE REV. CANON ROBERT MERRY

"This only extends the day of reckoning," said Richard Sullivan, speaking for the Massachusetts Department of Environmental Quality after 5 straight days of fog and drizzle and pouring rain. What did he mean? Did he really mean we are heading for a water crisis of mammoth proportions when our very physical life on earth will be threatened? It certainly sounded like that, and gleanings from random press reports on our environmental pollution and our drought the past year, point in the same direction.

We have had a drought condition in New England, we are told, for approximately 40 years, intensified in the dry spell of 1961-65, and threatening its purity for human use in almost daily reports of toxic waste dumpings. Just how well is Duxbury equipped to deal with this? I spent last Wednesday morning with our water superintendent, Samuel Carpinetti, probing these and similar questions. His response was reassuring and first of all he reminded me that all surrounding towns had a water ban last summer, except Duxbury. He explained in some detail how our water system works with a field trip to several of our installations all of which I will summarize in this and another article on our water, appearing in the **Clipper** soon. First, I'd like to look at water as a basic substance for living and its relation to human life on the planet.



We first hear of the significance of water as the essential element (along with air and food) in human life in the philosophy of Thales, a Greek thinker who lived from 640-546 BC. Thales is noted for his advances beyond the Egyptians in mathematics, and his achievement in astronomy by predicting the total eclipse of the sun on May 28, 585, thus terminating hostilities between 2 warring armies. But his greatest contribution to human life and history was his teaching that water was the one primordial substance from which all other creatures were made. We note further the importance of water as basic material into which God created the world, in the first chapter of Genesis. "Now the earth was a formless void, there was darkness over the face of the deep and God's spirit moved over the waters" (Genesis I, v. 2). "And God said, 'Let there be a vault in the waters to divide the waters from the waters'" (v. 6). Again in the account of the Flood we read, "In the 600th year of Noah's life, in the second month, on the 17th day of that month, that very day all the springs of the great deep broke through and the sluices of heaven were opened (Genesis 7, vs. 11 New Jerusalem Bible). It must have been like the break-up of a submerged submarine with water coming in from all directions -- the flood from below as well as above. It is clear also from other parts of the Old Testament that God's work in creation was viewed as a driving power, pressuring the waters and driving them back to form an open space for air where living and breathing creatures would be able to survive. It would not be unlike our lowering of a diving bell with air pressure forcing water out as it would be lowered to work on an underwater wreck, for example. Again we read in Psalm 33, v. 6, "By the Word of the Lord were the heavens made; He hath made all things by the breath of His mouth."

Contemporary cosmology teaches that a Big Bang occurred in space billions of years ago and set up our solar system, with our sun as its center. Water came later after the earth had cooled in the form of torrential rains that continued year in and year out and finally filled up the oceans. Does anyone ask where these rains themselves came from? Have we really unraveled the mysteries of existence so far that we know the answers here? Was Thales wrong? Modern science has still to answer the question convincingly. If we were to reduce all physical nature to one common substance would we be far off to say that water comes closest to it?

Along with air itself the availability of clean, fresh water has always been the requisite of civilizations. Many have disappeared when they ceased to have it. It was a primary consideration of the Pilgrims in their landing at Plymouth. They needed cleared land for growing crops and building shelters; they needed a navigable and protected harbor; above all they needed a good supply of fresh water. Plymouth gave them all 3. Myles Standish found a spring on the land on Standish Shore which he had been allotted for his farm. He must have been startled as some of us are to find springs like this only a few yards from tidal salt water flats. This particular spring, now found was to last for him and his descendants until the great storm in 1851 wiped it out. Today a stone marks the spot where it once bubbled. So important were springs like this one, that until recently (for example, the mid-1800's) accessibility to springs was written into the deeds for property. Even today a water pipe reaching from the Millbrook stream on Tremont St. brings water all the way up to what used to be Dr. Leavitt's house, some 100 yards up the hill.

As time went on and more farms were settled and more access to water required, dug wells became popular. These were usually dug by hand a few feet away from the back doors of the houses. In Duxbury's sandy and hospitable soil water would be reached in 15 or 20 feet, although some went as deep as 50 feet. Digging in this soil, cave-ins would have taken place were it not for the cylindrical rock walls

that were constructed on the way down. Another happy use for the abundant rock supply (in addition to field fences) that New England provided. A wooden frame would now be built above with a windlass, rope and bucket and crank with ratchet for lowering and raising. Sometimes well sweeps would be used consisting of a long pole on a swivel that would be used to raise and lower the bucket. Only one or 2 of these found use in Duxbury. As younger generations came along ells would often be added to houses enclosing the well, which would then serve for refrigeration as well as providing water.

Walter Prince recalls lifting hundreds of buckets of water and carrying them to the barn for the cows and pigs and horses and chickens and to the house for the family. He also remembers dropping the bucket one day and lowering himself by straddling the rock walls and retrieving it from a depth of 40 feet. They must have built these rock wells as well as they did the New England stone walls.

In addition to wells outside the houses, most families had cisterns which consisted of large pine plank tanks in the basement with drain pipes from all the eaves and a pipe to the kitchen sink upstairs. At the end of the sink was the familiar cast iron pump and the essential pitcher of water for priming. Cistern water was always used for washing since it was so soft, and cooking, but only seldom for drinking. I was going to say "never," but Dorothy Wentworth reminded me that for many generations the Governor Bradford House depended on rain water and its cistern for all its water needs.

I have not researched the invention of windmill pumps, but they appeared in Duxbury in the late 1800's and furnished the main motive power for bringing water from the wells into the house and barn. We had one on our barn roof which pumped water into a zinc tank in the attic of our house on Washington St. above Blue Earth River. Windmills were the chief source of power during this time and the late Earle Chandler told of a trip through the town with his grandfather when a small boy who had a regular route servicing windmills, greasing and repairing and replacing worn parts.



Windmill behind Powder Point house

Walter Prince says the town used to tax windmills as its chief source of revenue at the time. He also recalled that windmills had a lever on them with which it was possible to "feather" them in a strong wind. But since the windmills could lift water only 28 feet (relying on atmospheric pressure as they were) different types of pumps were invented. One I remember was the "Ram Pump," which used a bulb of compressed air to shoot water up a hill. Then of course the 2-cycle combustion engine came into general use and this made things much easier. I do recall that windmills were slow to wear out, and Dr. Noyes had one on his barn with the tank just below it for many years.

Another form of combustion was being felt more and more in Duxbury in the early 1900's and this was bound to make a radical change in our accessibility to water. Growth in the town had its effect and bucket brigades with all the best efforts in the world were proving again and again inadequate to meet the need. Wells and cisterns and water wagons were ineffectual against the onslaught of a major house fire. Eden Soule, in his town report as fire chief in 1912, lamented the loss of 3 lovely homes simply due to the shortage of water. Clearly something had to be done, and the bold step of establishing a town water system was undertaken. It was a very bold one, perhaps the most



View from Duxbury
Yacht Club pier with
windmill behind the
clubhouse. It may have
been on present Fitz-
gibbons house.

far-reaching of any undertaking since the founding and incorporation of Duxbury itself. And reading between the lines of town reports from 1910 on, we see that such an undertaking is not begun and carried through without its difficulties. But there were in town at this time a group of "young Turks," most of whose sons and grandsons are with us today. We read names like Walker, Soule, Parker, Peterson, Wadsworth, Knapp, Clark, all of whom were involved in making Duxbury a distinctive community, and the water commissioners who have carried on the tradition begun then deserve a great vote of thanks from us. Supt. Carpinetti says that all the work of the water department has been a consistent building upon those first firm foundations.

An early decision was to choose wells and standpipes for water sources over surface water reservoirs because of the many cranberry bogs that needed this water and also because there would be less fluctuation in water reserves. This may explain in part why Duxbury has greater reserves than most towns in this area. The original system located its main pumps at what was felt to be the most abundant spring and clearest water in town, namely at Millbrook. This location had also been in use by Ezra Weston as a water powered weaving mill. The highest point in town was selected for the first water reservoir on Captain's Hill. This tank was dismantled and a larger one (now holding 2,000,000 gallons) put in its place in 1970. The pumps at that time were operated by 2 enormous gasoline engines. Now 9 smaller pumps operated by electricity with propane-fired engines as back-up and monitored by telemeters from the office's central location assure that an abundant water supply is on hand at all times.

(This is the first of 2 articles on Duxbury's water supply.)